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New national and regional Annex I Habitat records: from #13 to #15

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Abstract

New data on the distribution of the Annex I Habitats 3160, 7210* and 9320 are reported in this contribution. In detail, 24 new occurrences in Natura 2000 Sites are presented and 42 new cells in the EEA 10 km x 10 km Reference grid are added. The new data refer to Italy and in particular to the Administrative Regions Lombardy, Sardinia, and Sicily.

Keywords

3160, 7210*, 9320, biodiversity, conservation, 92/43/EEC Directive, Italy, vegetation

Introduction

This is the third standardized contribution reporting records of new occurrences of Annex I Habitats in Europe. The data here presented have been compared to the results of the 4th Report ex-Art. 17 on Annex I Habitat Monitoring in Europe, delivered in 2019 and available on the Eionet Central Data Repository (Eionet, 2019). As usual, the related phytosociological relevés here reported will be archived in the Italian database "VegItaly" (Gigante et al. 2014; Landucci et al. 2012).

Habitats Records

The single records including details and descriptions of the newly recorded habitats are hereafter listed. As standard reference for official sources and formats, the indications in Gigante et al. (2019) have been followed. A synthetic overview of the newly recorded occurrences is provided in Table 1. The maps have been created by using the open source QGIS Geographic Information System (QGIS.org 2020).

#13. Annex I Habitat: 3160 Natural dystrophic lakes and ponds (Bolpagni R, Dalla Vecchia A, Cerabolini BEL)

EUNIS Classification system: C1.45 Peatmoss and Utricularia communities of dystrophic waterbodies
Biogeographical Region: Continental
National Habitat Checklist of reference: Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi et al. 2009).
Phytosociological reference: *Scorpidio-Utricularion minoris* Pietsch 1965, *Utricularietalia intermedio-minoris*

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Table 1. Syntetic overview of the newly reported data.

Hab ID	Hab name	Cell ID	Country	BR	N2000 Site	Authors
3160	Natural dystrophic lakes and ponds	10kmE437N245	Italy	CON	IT20B0017	Bolpagni R, Dalla Vecchia A, Cerabolini BEL
7210*	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*	10kmE423N199	Italy	MED	ITB012211	Rivieccio G, Caria MC, Bagella S
9320	*Olea* and *Ceratonia* forests	10kmE450N152, 10kmE452N165, 10kmE452N166, 10kmE454N166, 10kmE455N167, 10kmE456N162, 10kmE456N166, 10kmE456N167, 10kmE457N162, 10kmE457N165, 10kmE458N142, 10kmE458N166, 10kmE459N166, 10kmE460N166, 10kmE461N162, 10kmE461N167, 10kmE461N168, 10kmE462N166, 10kmE463N161, 10kmE463N164, 10kmE463N166, 10kmE464N166, 10kmE467N166, 10kmE468N166, 10kmE469N166, 10kmE470N166, 10kmE471N156, 10kmE471N166, 10kmE471N167, 10kmE472N156, 10kmE474N163, 10kmE474N164, 10kmE475N154, 10kmE476N162, 10kmE476N168, 10kmE477N157, 10kmE477N162, 10kmE477N163, 10kmE477N168, 10kmE478N168	Italy	MED	ITA010003, ITA010004, ITA010005, ITA010008, ITA010010, ITA010016, ITA010019, ITA020003, ITA020006, ITA020012, ITA020014, ITA020024, ITA020025, ITA020043, ITA030007, ITA030012, ITA030017, ITA040001, ITA040007, ITA070011, ITA080009, ITA090009	Gianguzzi L, Bazan G

Pietsch 1965, *Utricularietea intermedio-minoris* Pietsch 1965 (Biondi and Blasi 2015).

Geographic information: Italy, Lombardy, Mantua, La Piuda, 20 m a.s.l., Coordinates: 45.16735 N, 10.70986 E (Table 2, Relève 1); 45.16682 N, 10.70964 E (Table 2, Relève 2).

Cell ID in the EEA reference grid: 10kmE437N245 (Figure 1).

Natura 2000 Site Code: SAC IT20B0017 "Ansa e Valli del Mincio"

Phytosociological table: Table 2; taxonomic nomenclature according to Bartolucci et al. (2018) and Aleffi et al. (2015).

Notes: Relict *Utricularia minor* L. populations have been recently recorded for the "La Piuda", an extensive alkaline fen habitat (~115 ha) located few kilometres northwest the city of Mantua, in the central sector of the Po plain. Here, a series of small dystrophic pools (<5 m^2) are scattered within a series of peat meadows dominated by *Molinia caerulea* (L.) Moench and *Cladium mariscus* (L.) Pohl (Biondi et al. 2009; Brusa et al. 2017). These species create a complex vegetation mosaic interspersed by dense pioneer stands of *Rhynchospora alba* (L.) Vahl. The system results largely fed by groundwater seepage and apparently it is hydrologically disconnected by the nearby Mincio River. Indeed, the water quality of the ponds is not compliant with the physical and chemical status of surface water bodies of the Po plain (Bolpagni et al. 2016). The reactive soluble phosphorous, for example, turned out to be always lower than the analytical detection limit (5 µg L^{-1}, Bolpagni R., unpublished data). These peculiar chemical features offer the basal conditions for the maintenance of the *U. minor* communities and peatland mosses, mainly represented by *Sphagnum contortum* Schultz and *Campylium stellatum* (Hedw.) Lange & C.E.O. Jensen. Further, the local water oligotrophy guarantees the presence of species and vegetation of exceptional biogeographical value in the context of the Po plain, at an altitude of only 20 m a.s.l. The present report expands and reinforces the presence of the habitat 3160 in the Continental region in Italy, that was considered, so far, only marginal.

#14. Annex I Habitat: 7210* Calcareous fens with *Cladium mariscus* and species of the (Rivieccio G, Caria MC, Bagella S)

EUNIS Classification system: D5.2 Beds of large sedges normally without free-standing water (narrower), D5.24 Fen *Cladium mariscus* beds (wider).

Biogeographical Region: Mediterranean

National Habitat Checklist of reference: Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi et al. 2009).

Figure 1. Distribution in Italy of the Habitat 3160: in black the new cell, in grey the cells officially reported in the 4th Habitat report ex-Art. 17 (period 2013-2018).

Table 2. Habitat 3160.

Relevé number	1	2	
Cell ID	10kmE437N245	10kmE437N245	
Latitude	4.516.735	4.516.682	
Longitude	1.070.986	1.070.964	
Date	10/07/2019	10/07/2019	
Area (m^2)	4	4	
Altitude (m a.s.l.)	20	20	
Aspect	-	-	
Slope (°)	0	0	
Emergent herb layer Cover (%)	60	35	
Submerged herb layer Cover (%)	10	25	
Moss layer Cover (%)	5	0	
Water surface (%)	35	50	
Utricularietea intermedio-minoris			Presences
^*Utricularia minor* L.	1	2	2
Other species			
Cladium mariscus (L.) Pohl	3	1	2
Juncus subnodulosus Schrank	1	2	2
Lythrum salicaria L.	1	+	2
^*Rhynchospora alba* (L.) Vahl	1	1	2
Hydrocotyle vulgaris L.	+	+	2
Juncus articulatus L. subsp. *articulatus*	+	+	2
Campylium stellatum (Hedw.) Lange & C.E.O. Jensen	+	.	1
Mentha aquatica L. subsp. *aquatica*	.	+	1

^ Reference plant species of the Habitat 3160, from Biondi et al. (2009).

Phytosociological reference: *Magnocaricion elatae* Koch 1926, *Magnocaricetalia elatae* Pignatti 1953, *Phragmito australis-Magnocaricetea elatae* Klika in Klika & Novák 1941 (Biondi & Blasi, 2015; Venanzoni et al. 2018).
Geographic information: Italy, Sardinia, Sassari, Trinità d'Agultu e Vignola, Costa Paradiso, Spiaggia di Li Cossi, 3 m a.s.l., Coordinates: 41.046760 N, 8.936343 E (Table 3, Relevé 1); Coordinates: 41.046661 N, 8.936558 E (Table 3, Relevé 2); Coordinates: 41.046535 N, 8.936687 E (Table 3, Relevé 3).
Cell ID in the EEA reference grid: 10kmE423N199 (Figure 2).
Natura 2000 Site Code: SAC ITB012211 "Isola Rossa - Costa Paradiso"
Phytosociological table: Table 3; taxonomic nomenclature according to Portale della Flora d'Italia (2019).
Notes: This new station was detected basing on the data concerning *Cladium mariscus* (L.) Pohl distribution reported in the online floristic database "Wikiplantbase" (Peruzzi et al. 2017). This is the second reported site of occurrence of this priority habitat for Sardinia Region, being the first one at Platamona lagoon (Gigante et al. 2019). The station is very close to the sea and in contact with psammophilous vegetation.

#15. Annex I Habitat: 9320 Olea and Ceratonia forests (Gianguzzi L, Bazan G)

EUNIS Classification system: G2.41 Wild *Olea europaea* woodland
Biogeographical Region: Mediterranean
National Habitat Checklist of reference: Manuale Italiano di interpretazione degli habitat della Direttiva 92/43/CEE (Biondi et al. 2009).
Phytosociological reference: *Ruto chalepensis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *oleetosum sylvestris* Gianguzzi et Bazan 2019, *Ruto chalepensis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *cercidetosum siliquastri* Gianguzzi et Bazan 2019, *Ruto*

Table 3. Habitat 7120*.

Relevé number	1	2	3	
Cell ID	10kmE423N199	10kmE423N199	10kmE423N199	
Latitude	41.046.760	41.046.661	41.046.535	
Longitude	8.936.343	8.936.558	893.668	
Date	10/6/2019	10/6/2019	10/6/2019	
Area (m²)	4	6	6	
Altitude (m a.s.l.)	3	3	3	
Cover (%)	100	100	100	
Average vegetation height (m)	1.4	1.4	1.4	
Water presence	no	yes	no	Presences
Magnocaricion elatae, Magnocaricetalia elatae, Phragmito australis-Magnocaricetea elatae				
^*Cladium mariscus* (L.) Pohl	5	5	5	3
Phragmites australis (Cav.) Trin. ex Steud.	1	1	1	3
Carex hispida Willd. ex Schkuhr	.	1	+	2
Lythrum salicaria L.	1	+	.	2
Other species				
Convolvulus sepium L.	+	1	2	3
Dittrichia viscosa (L.) Greuter subsp. *viscosa*	+	+	+	3
Rubia peregrina L.	+	+	+	3
Hydrocotile vulgaris L.	.	+	+	2
Alnus glutinosa (L.) Gaertn.	.	.	r	1
Armeria pungens (Link) Hoffmanns. & Link	.	.	+	1
Clematis flammula L.	.	+	.	1
Ficus carica L.	.	r	.	1
Juncus maritimus Lam.	.	.	+	1
Limniris pseudacorus (L.) Fuss	.	1	.	1
Mentha aquatica L. subsp. *aquatica*	.	+	.	1
Myrtus communis L.	.	.	+	1
Oenanthe lachenalii C.C.Gmel.	.	.	+	1
Potentilla reptans L.	.	.	+	1
Schoenus nigricans L.	.	.	+	1
Salix sp.	.	.	+	1

^ Reference plant species of the Habitat 7210*, from Biondi et al. (2009).

Figure 2. Distribution in Italy of the Habitat 7120*: in black the new cell, in grey the cells officially reported in the 4th Habitat report ex-Art. 17 (period 2013-2018), in white (black outline) the cell recorded after the 4th Habitat report (Gigante et al. 2019).

chalepensis-Oleetum sylvestris Gianguzzi et Bazan 2019 *celtidetosum australis* Gianguzzi et Bazan 2019, *Ruto chalepensis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *euphorbietosum bivonae* Gianguzzi et Bazan 2019, *Ruto chalepensis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *rhamnetosum oleoidis* Gianguzzi et Bazan 2019, *Ruto chalepensis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *periplocetosum angustifoliae* Gianguzzi et Bazan 2019, *Chamaeropo humilis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *acanthetosum mollis* Gianguzzi et Bazan 2019, *Chamaeropo humilis-Oleetum sylvestris* Gianguzzi et Bazan 2019 *ephedretosum fragilis* Gianguzzi et Bazan 2019, *Oleo sylvestris-Ceratonion siliquae* Br.-Bl. ex Guinochet et Drouineau 1944, *Pistacio lentisci-Rhamnetalia alaterni* Rivas-Martínez 1975, *Calicotomo infestae-Oleetum sylvestris* Gianguzzi et Bazan 2019 *typicum*, *Calicotomo infestae-Oleetum sylvestris* Gianguzzi et Bazan 2019 *asplenietosum obovatae* Gianguzzi et Bazan 2019, *Erico arboreae-Quercion ilicis* Brullo, Di Martino et Marcenò 1977, *Quercetalia ilicis* Br.-Bl. ex Molinier 1934; *Quercetea ilicis* Br.-Bl. in Br.-Bl., Roussine et Nègre 1952 (Gianguzzi and Bazan 2019a, 2019b; Biondi and Blasi 2015). For a detailed correspondence with the EEA reference grid cells, see Table 4.

Geographic information: Relevés and tables mentioned in this paragraph refer to Gianguzzi and Bazan (2019a): Italy, Sicily, Patti, Promontorio Tindari, 118 m a.s.l., Coordinates: 15.050378 E, 38.135782 N (Relevé 1, Table S1); Isnello, Aquileia, 389 m a.s.l., Coordinates: 14.047021 E, 37.944303 N (Relevé 2, Table S1); Modica, Cava d'Ispica, 360 m a.s.l., Coordinates: 14.843852 E, 36.848259 N (Relevé 3, Table S1); Rosolini, Cava d'Ispica, 110 m a.s.l., Coordinates: 14.862874 E, 36.816794 N (Relevé 4, Table S1,); Termini Imerese, Fiume San Leonardo, 110 m a.s.l., Coordinates: 13.668602 E, 37.978917 N (Relevé 5, Table S1); Altavilla Milicia, Torre Normanna, 20 m a.s.l., Coordinates: 13.599493 E, 38.026267 N (Relevè 6, Table S1); Santo Stefano Quisquina, C.da Liste Inferno, 680 m a.s.l., Coordinates: 13.542324 E, 37,578661 N (Relevé 7, Table S1); Patti, Promontorio Tindari, 200 m a.s.l., Coordinates: 15,036618 E 38,147196 N (Relevè 8, Table S1); Patti, Promontorio Tindari, 15 m a.s.l., Coordinates: 15,037066 E 38,145108 N (Relevè 9, Table S1); Patti, Promontorio Tindari, 50 m a.s.l., Coordinates: 15,036824 E 38,146639 N (Relevè 10, Table S1); Castelbuono, Gole di Tiberio, 95 m a.s.l., Coordinates: 14,148705 E 37,954782 N (Relevè 11, Table S1); Sortino, Valle dell'Anapo, 230 m a.s.l., Coordinates: 15,037351 E 37,138930 N (Relevè 12, Table S1); Palermo, Monte Pellegrino, 140 m a.s.l., Coordinates: 13,345964 E 38,162923 N (Relevè 13, Table S1); Palermo, Monte Pellegrino, 140 m a.s.l., Coordinates: 13,344326 E 38,165197 N (Relevè 14, Table S1); Palermo, Monte Pellegrino, 140 m a.s.l., Coordinates: 13,342264 E 38,168068 N (Relevè 15, Table S1); Palermo, Monte Pellegrino, 130 m a.s.l., Coordinates: 13,344986 E 38,165258 N (Relevè

Table 4. Habitat 9320: cells of the EEA reference grid and Natura 2000 Sites where the new records are located; table and relevés numbers refer to Gianguzzi and Bazan (2019a).

Cell ID	N2000 site	Table number	Relevés number
10kmE450N152	SAC ITA010019 "Isola di Pantelleria: Montagna Grande e Monte Gibele"	S3	55-57
10kmE452N165	SAC ITA010004 "Isola di Favignana"	S3	49
10kmE452N165	SAC ITA010004 "Isola di Favignana"	S3	51-53
10kmE452N166	SAC ITA010003 " Isola di Levanzo"	S3	44-48
10kmE454N166	SAC ITA010010 "Monte San Giuliano"	S2	39
10kmE455N167	SAC ITA010016 "Monte Cofano e Litorale"	S2	27-31
10kmE455N167	SAC ITA010016 "Monte Cofano e Litorale"	S2	33-35
10kmE456N162	SAC ITA010005 "Laghetti di Preola e Gorghi Tondi e Sciare di Mazara"	S4	69
10kmE456N166	SAC ITA010008 "Complesso Monte Bosco e Scorace"	S6	106-107
10kmE456N167	-	S2	36
10kmE457N162	-	S4	65-68
10kmE457N162	-	S4	74-87
10kmE457N165	-	S4	72
10kmE457N165	-	S6	104-105
10kmE458N142	SAC ITA040001 "Isole dello Stagnone di Marsala"	S3	58-59
10kmE458N166	-	S2	32
10kmE458N166	-	S5	94-103
10kmE459N166	-	S4	70-71
10kmE459N166	-	S4	73
10kmE459N166	-	S5	88-89
10kmE460N166	-	S2	43
10kmE461N162	SAC ITA020025 "Isola di Linosa"	S2	41-42
10kmE461N167	SAC ITA020012 "Valle del Fiume Oreto"	S4	60-64
10kmE461N168	SAC ITA020006 "Capo Gallo"	S2	37-38
10kmE461N168	SAC ITA020014 "Monte Pellegrino"	S1	13-16
10kmE461N168	SAC ITA020014 "Monte Pellegrino"	S2	21-26
10kmE461N168	SAC ITA020014 "Monte Pellegrino"	S2	40
10kmE462N166	-	S6	108
10kmE463N161	SAC ITA040007 "Pizzo della Rondine, Bosco di S. Stefano Quisquina"	S1	7
10kmE463N164	SAC ITA020024 "Rocche di Ciminna"	S3	54
10kmE463N166	-	S1	6
10kmE464N166	SAC ITA020043 "Monte Rosamarina e Cozzo Famò"	S1	5
10kmE467N166	-	S1	2
10kmE468N166	SAC ITA020003 "Boschi di San Mauro Castelverde"	S1	11
10kmE469N166	-	S6	112-113
10kmE470N166	-	S3	50
10kmE471N156	-	S5	90-91
10kmE471N166	SAC ITA030017 "Vallone Laccaretta e Urio Quattrocchi"	S6	109-110

Table 4. Continuation.

Cell ID	N2000 site	Table number	Relevés number
10kmE471N167	-	S6	111
10kmE472N156	-	S5	92-93
10kmE474N163	SAC ITA070011 "Poggio S. Maria"	S6	114
10kmE474N164	-	S6	115
10kmE475N154	SAC ITA080009 "Cava d'Ispica"	S1	3-Apr
10kmE476N162	-	S1	18
10kmE476N168	SAC ITA030012 "Laguna di Oliveri - Tindari"	S1	1
10kmE476N168	SAC ITA030012 "Laguna di Oliveri - Tindari"	S1	8-Oct
10kmE477N157	SAC ITA090009 "Valle del Fiume Anapo, Cavagrande del Calcinara, Cugni di Sortino"	S1	12
10kmE477N162	-	S1	17
10kmE477N162	-	S1	19
10kmE477N163	-	S1	20
10kmE477N168	-	S6	116
10kmE478N168	-	S6	117
10kmE478N168	-	S6	119-120
10kmE478N168	SAC ITA030007 "Affluenti del Torrente Mela"	S6	118

16, Table S1); Aci Sant'Antonio, Piano San Giovanni, 260 m a.s.l., Coordinates: 15,132394 E 37,607401 N (Relevè 17, Table S1); Belpasso, C.da Giovencheria, 328 m a.s.l., Coordinates: 14,960469 E 37,564890 N (Relevè 18, Table S1); Aci Sant'Antonio, Piano San Giovanni, 250 m a.s.l., Coordinates: 15,130932 E 37,603752 N (Relevè 19, Table S1); Acireale, C.da Pizzone, 180 m a.s.l., Coordinates: 15,158616 E 37,611611 N (Relevè 20, Table S1); Palermo, Monte Pellegrino, 560 m a.s.l., Coordinates: 13,353614 E 38,165324 N (Relevè 21, Table S2); Palermo, Monte Pellegrino, 570 m a.s.l., Coordinates: 13,358136 E 38,162278 N (Relevè 22, Table S2); Palermo, Monte Pellegrino, 550 m a.s.l., Coordinates: 13,352480 E 38,165630 N (Relevè 23, Table S2); Palermo, Monte Pellegrino, 540 m a.s.l., Coordinates: 13,356010 E 38,162879 N (Relevè 24, Table S2); Palermo, Monte Pellegrino, 580 m a.s.l., Coordinates: 13,353118 E 38,165582 N (Relevè 25, Table S2); Palermo, Monte Pellegrino, 310 m a.s.l., Coordinates: 13,363137 E 38,157461 N (Relevè 26, Table S2); Custonaci, Riserva Monte Cofano, 90 m a.s.l., Coordinates: 12,687013 E 38,103337 N (Relevè 27, Table S2); Custonaci, Riserva Monte Cofano, 130 m a.s.l., Coordinates: 12,686441 E 38,103813 N (Relevè 28, Table S2); Custonaci, Monte Palatimone, 223 m a.s.l., Coordinates: 12,695398 E 38,096905 N (Relevè 29, Table S2); Custonaci, Monte Palatimone, 221 m a.s.l., Coordinates: 12,694294 E 38,097898 N (Relevè 30, Table S2); Custonaci, Monte Palatimone, 225 m a.s.l., Coordinates: 12,696293 E 38,095822 N (Relevè 31, Table S2); Partinico, Santuario Madonna del Ponte, 580 m a.s.l., Coordinates: 13,033546 E 38,039098 N (Relevè 32, Table S2); Custonaci, Mt. Cofano, 130 m a.s.l., Coordinates: 12,686595 E 38,103635 N (Relevè 33, Table S2); Custonaci, Mt. Cofano, 100 m a.s.l., Coordinates: 12,686737 E 38,103432 N (Relevè 34, Table S2); Custonaci, Monte Cofano, 50 m a.s.l., Coordinates: 12,675570 E 38,113053 N (Relevè 35, Table S2); Custonaci, Monte Palatimone, 250 m a.s.l., Coordinates: 12,706626 E 38,088938 N (Relevè 36, Table S2); Palermo, Monte Gallo, 460 m a.s.l., Coordinates: 13,310307 E 38,216177 N (Relevè 37, Table S2); Palermo, Monte Gallo, 430 m a.s.l., Coordinates: 13,309178 E 38,217142 N (Relevè 38, Table S2); Erice, C.da Pizzolungo, 240 m a.s.l., Coordinates: 12,578676 E 38,059250 N (Relevè 39, Table S2); Palermo, Monte Pellegrino presso l'Addaura, 47 m a.s.l., Coordinates: 13,338136 E 38,194702 N (Relevè 40, Table S2); Burgio, Castello Gristia, 375 m a.s.l., Coordinates: 13,268518 E 37,638385 N (Relevè 41, Table S2); Burgio, Castello Gristia, 380 m a.s.l., Coordinates: 13,268334 E 37,638033 N (Relevè 42, Table S3); San Giuseppe Jato, Pizzo Mirabella, 720 m a.s.l., Coordinates: 13,217704 E 38,001451 N (Relevè 43, Table S2); Levanzo, Capo Grosso, 85 m a.s.l., Coordinates: 12,332344 E 38,013284 N (Relevè 44, Table S3); Levanzo, Punta Genovese, 150 m a.s.l., Coordinates: 12,331608 E 38,010906 N (Relevè 45, Table S3); Levanzo, Capo Grosso, 65 m a.s.l., Coordinates: 12,331930 E 38,012122 N (Relevè 46, Table S3); Levanzo, La Fossa, 190 m a.s.l., Coordinates: 12,342342 E 37,999787 N (Relevè 47, Table S3); Levanzo, La Fossa, 170 m a.s.l., Coordinates: 12,342443 E 37,999643 N (Relevè 48, Table S3); Favignana, Montagna Grossa, 160 m a.s.l., Coordinates:

12,309161 E 37,938484 N (Relevè 49, Table S3); Mistretta, Montagna Grossa, 110 m a.s.l., Coordinates: 14,384398 E 37,942904 N (Relevè 50, Table S3); Favignana, Montagna Grossa, 95 m a.s.l., Coordinates: 12,308115 E 37,938558 N (Relevè 51, Table S3); Favignana, Montagna Grossa, 90 m a.s.l., Coordinates: 12,307137 E 37,938754 N (Relevè 52, Table S3); Favignana, Montagna Grossa, 80 m a.s.l., Coordinates: 12,305797 E 37,938689 N (Relevè 53, Table S3); Ciminna, Montagna Grossa, 70 m a.s.l., Coordinates: 13,584770 E 37,850821 N (Relevè 54, Table S3); Pantelleria, C.da Favare, 465 m a.s.l., Coordinates: 12,000675 E 36,770708 N (Relevè 55, Table S3); Pantelleria, C.da Favare, 460 m a.s.l., Coordinates: 12,000350 E 36,770569 N (Relevè 56, Table S3); Pantelleria, C.da Favare, 450 m a.s.l., Coordinates: 12,002469 E 36,770179 N (Relevè 57, Table S3); Linosa, C.da Grotta, 0 m a.s.l., Coordinates: 12,865183 E 35,866445 N (Relevè 58, Table S3); Linosa, C.da Grotta, 0 m a.s.l., Coordinates: 12,867218 E 35,866030 N (Relevè 59, Table S3); Palermo, Fuime Oreto, 66 m a.s.l., Coordinates: 13,342731 E 38,089208 N (Relevè 60, Table S4); Palermo, Fuime Oreto, 63 m a.s.l., Coordinates: 13,343899 E 38,088774 N (Relevè 61, Table S4); Palermo, Fuime Oreto, 60 m a.s.l., Coordinates: 13,342409 E 38,088735 N (Relevè 62, Table S4); Palermo, Fuime Oreto, 67 m a.s.l., Coordinates: 13,337801 E 38,087655 N (Relevè 63, Table S4); Palermo, Fuime Oreto, 65 m a.s.l., Coordinates: 13,338085 E 38,087875 N (Relevè 64, Table S4); Castelvetrano, Castello della Pietra, 160 m a.s.l., Coordinates: 12,890245 E 37,662671 N (Relevè 65, Table S4); Castelvetrano, Castello della Pietra, 250 m a.s.l., Coordinates: 12,891669 E 37,666048 N (Relevè 66, Table S4); Castelvetrano, Castello della Pietra, 200 m a.s.l., Coordinates: 12,891641 E 37,665574 N (Relevè 67, Table S4); Campobello di Mazara, Cave di Cusa, 70 m a.s.l., Coordinates: 12,719638 E 37,619277 N (Relevè 68, Table S4); Campobello di Mazara, Cave di Cusa, 70 m a.s.l., Coordinates: 12,714475 E 37,619458 N (Relevè 69, Table S4); Partinico, Fiume Iato, 150 m a.s.l., Coordinates: 13,073628 E 38,021498 N (Relevè 70, Table S4); Partinico, Fiume Iato, 160 m a.s.l., Coordinates: 13,075261 E 38,021952 N (Relevè 71, Table S4); Calatafimi, C.da Scorciagatto, 250 m a.s.l., Coordinates: 12,872111 E 37,933454 N (Relevè 72, Table S4); Partinico, Fiume Iato, 135 m a.s.l., Coordinates: 13,073967 E 38,021332 N (Relevè 73, Table S4); Castelvetrano, Strada del Filo, 80 m a.s.l., Coordinates: 12,809836 E 37,628560 N (Relevè 74, Table S4); Castelvetrano, Strada del Filo, 78 m a.s.l., Coordinates: 12,787859 E 37,629975 N (Relevè 75, Table S4); Castelvetrano, Strada del Filo, 79 m a.s.l., Coordinates: 12,781526 E 37,628579 N (Relevè 76, Table S4); Castelvetrano, Strada del Filo, 70 m a.s.l., Coordinates: 12,797897 E 37,630373 N (Relevè 77, Table S4); Castelvetrano, Strada del Filo, 76 m a.s.l., Coordinates: 12,797626 E 37,630343 N (Relevè 78, Table S4); Castelvetrano, Strada del Filo, 81 m a.s.l., Coordinates: 12,784324 E 37,628846 N (Relevè 79, Table S4); Castelvetrano, Strada del Filo, 81 m a.s.l., Coordinates: 12,783345 E 37,629091 N (Relevè 80, Table S4); Castelvetrano, Strada del Filo, 74 m a.s.l., Coordinates: 12,785612 E 37,629500 N (Relevè 81, Table S4); Castelvetrano, Strada del Filo, 86 m a.s.l., Coordinates: 12,815327 E 37,628691 N (Relevè 82, Table S4); Castelvetrano, Strada del Filo, 84 m a.s.l., Coordinates: 12,811872 E 37,628789 N (Relevè 83, Table S4); Castelvetrano, Strada del Filo, 80 m a.s.l., Coordinates: 12,818864 E 37,628506 N (Relevè 84, Table S4); Castelvetrano, Strada del Filo, 80 m a.s.l., Coordinates: 12,815974 E 37,628746 N (Relevè 85, Table S4); Castelvetrano, Strada del Filo, 65 m a.s.l., Coordinates: 12,797759 E 37,630078 N (Relevè 86, Table S4); Castelvetrano, Strada del Filo, 67 m a.s.l., Coordinates: 12,797919 E 37,630609 N (Relevè 87, Table S4); Partinico, Fiume Jato, 155 m a.s.l., Coordinates: 13,062089 E 38,024018 N (Relevè 88, Table S5); Partinico, Fiume Jato, 160 m a.s.l., Coordinates: 13,061635 E 38,021488 N (Relevè 89, Table S5); Gela, C.da Piano Stella, 90 m a.s.l., Coordinates: 14,378464 E 37,050093 N (Relevè 90, Table S5); Gela, C. da Piano Stella, 110 m a.s.l., Coordinates: 14,379472 E 37,050006 N (Relevè 91, Table S5); Acate, C.da Litteri, 150 m a.s.l., Coordinates: 14,486855 E 37,026701 N (Relevè 92, Table S5); Acate, C.da Litteri, 110 m a.s.l., Coordinates: 14,486369 E 37,026492 N (Relevè 93, Table S5); Partinico, Cozzo Ciluffo, 40 m a.s.l., Coordinates: 13,028215 E 38,052982 N (Relevè 94, Table S5); Partinico, Cozzo Ciluffo, 70 m a.s.l., Coordinates: 13,029255 E 38,053315 N (Relevè 95, Table S5); Partinico, Cozzo Ciluffo, 70 m a.s.l., Coordinates: 13,029249 E 38,053055 N (Relevè 96, Table S5); Partinico, Torrente Forgitella, 130 m a.s.l., Coordinates: 13,019845 E 38,044132 N (Relevè 97, Table S5); Partinico, Scarpate Piano Fico, 40 m a.s.l., Coordinates: 13,026285 E 38,048979 N (Relevè 98, Table S5); Partinico, Scarpate Piano Fico, 80 m a.s.l., Coordinates: 13,025797 E 38,047035 N (Relevè 99, Table S5); Partinico, Scarpate Piano Fico, 30 m a.s.l., Coordinates: 13,025846 E 38,049345 N (Relevè 100, Table S5); Partinico, Scarpate Piano Fico, 40 m a.s.l., Coordinates: 13,025341 E 38,049667 N (Relevè 101, Table S5); Partinico, Scarpate Piano Fico, 60 m a.s.l., Coordinates: 13,025496 E 38,049493 N (Relevè 102, Table S5); Partinico, Scarpate Piano Fico, 50 m a.s.l., Coordinates: 13,025566 E 38,048844 N (Relevè 103, Table S5); Calatafimi, C.da Vignazzi, 300 m a.s.l., Coordinates: 12,870861 E 37,932696 N (Relevè 104, Table S6); Calatafimi, C.da Vignazzi, 320 m a.s.l., Coordinates: 12,875185 E 37,939364 N (Relevè 105, Table S6); Buseto Palizzolo, Monte Scorace, 465 m a.s.l., Coordinates: 12,771394 E 37,986300 N (Relevè 106, Table S6); Buseto Palizzolo, Monte Scorace, 467 m a.s.l., Coordinates: 12,771227 E 37,985920 N (Relevè 107, Table S6); Bolognetta, P.zo Mangiatoriello, 540 m a.s.l., Coordinates: 13,489366 E 37,965510 N (Relevè 108, Table S6); Mistretta, C.da di Zupardo, 400 m a.s.l., Coordinates: 14,405601 E 37,939854 N (Relevè 109, Table S6); Mistretta, C.da Zupardo, 420 m a.s.l., Coordinates: 14,405761 E 37,939382 N (Relevè 110, Table S6); Caronia, C.da Onofrio, 300 m a.s.l., Coordinates: 14,431832 E 38,014651 N (Relevè 111, Table S6); Tusa, Milianni, 250 m a.s.l., Coordinates: 14,198336 E 38,013350 N (Relevè 112, Table S6); Tusa, C.da Marro, 180 m a.s.l., Coordinates: 14,239668 E

38,003724 N (Relevè 113, Table S6); Centuripe, Strada Cesarò-Adrano, 300 m a.s.l., Coordinates: 14,793680 E 37,656520 N (Relevè 114, Table S6); Bronte, Strada Cesarò-Adrano, 500 m a.s.l., Coordinates: 14,786433 E 37,731222 N (Relevè 115, Table S6); Mazzarrà Sant'Andrea, C.da Musclonita, 160 m a.s.l., Coordinates: 15,133028 E 38,082438 N (Relevè 116, Table S6); Santa Lucia del Mela, Castello, 335 m a.s.l., Coordinates: 15,281521 E 38,139027 N (Relevè 117, Table S6); Santa Lucia del Mela, Torrente Mela, 320 m a.s.l., Coordinates: 15,293759 E 38,091113 N (Relevè 118, Table S6); Santa Lucia del Mela, Torrente Mela, 250 m a.s.l., Coordinates: 15,280420 E 38,138956 N (Relevè 119, Table S6); Santa Lucia del Mela, Torrente Mela, 250 m a.s.l., Coordinates: 15,279890 E 38,139038 N (Relevè 120, Table S6).

Cells ID in the EEA reference grid: See Table 4 and Figure 3.

Natura 2000 Site Codes: See table 4.

Phytosociological table: Tab. S1, S2, S3, S4, S5, S6 in Gianguzzi and Bazan (2019a). The online database "The Plant List" (2013) and the Euro+Med Plantbase (Euro+Med, 2006-2019) were used for taxa nomenclature.

Notes: Recent studies have paid attention to the forest communities dominated by *Olea europaea* L. var. *sylvestris* (Mill.) Lehr. in Sicily (Gianguzzi & Bazan, 2019a) and the Mediterranean area (Gianguzzi & Bazan, 2019b), highlighting some inconsistencies in the correct interpretation and distribution of habitat 9320. In fact, as shown by the map in Fig. 3, the data collected for the IV Report (Eionet, 2019) still showed clear gaps in the distribution of this habitat in Sicily and in the southern part of the Italian Peninsula. These gaps were partly attributable to the significant destruction of oleaster forest formations – especially in the coastal belt – largely replaced by agricultural systems and urbanized areas, and only surviving in limited and fragmentary forest patches. *Olea europaea* var. *sylvestris* is a typical element of maquis dominated by *Pistacia lentiscus* as well as by *Euphorbia dendroides* (see, e.g., Molinier 1954; Trinajstic 1973, 1984)]. The abandonment of agricultural use and the reduction of human disturbances (on scrublands) lead over time to the gradual development of oleaster-dominated forest formations (Gianguzzi et al. 2016). Recent phytosociological surveys carried out on a large scale in Sicily (Gianguzzi & Bazan, 2019a, 2019b), have highlighted a more widespread presence of habitat 9320 than expected, although in punctual and small areas. These forest formations – and therefore the habitat 9320 – show a large-scale distributive potential, in line with what has been highlighted in other areas of the Mediterranean (Fig. 3). Considering their peculiarity, a more precise location of the representative sites and mature consortia would be necessary to promote their conservation and to limit their further floristic and phytocenotic biodiversity loss and structural deterioration.

Figure 3. Distribution in Italy of the Habitat 9320: in black the new cells, in grey the cells officially reported in the 4th Habitat report ex-Art. 17 (period 2013-2018).

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